COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
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Secretary

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Commissioner

PROVISIONAL USE APPROVAL
Pursuant to Title 5, 310 CMR 15.000

Name and Address of Applicant:

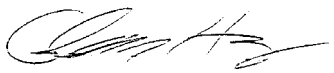
SeptiTech, Inc.
70 Commercial Street, Suite #3
Lewiston, ME 04240

Trade name of technology: SeptiTech models 400N, 550N, 750N, 1200N, 1500N and 3000N and SeptiTech Engineered systems (hereinafter the "System"). Schematic drawings illustrating the models and an Inspection Checklist are attached and are part of this Certification.

Transmittal Number: W076207
Date of Issuance: November 23, 2006
Expiration date: November 23, 2011

Authority for Issuance

Pursuant to Title 5 of the State Environmental Code, 310 CMR 15.000, the Department of Environmental Protection hereby issues this Approval to: SeptiTech, Inc., 70 Commercial Street, Suite #3, Lewiston, ME 04240 (hereinafter "the Company"), for Provisional Use in the Commonwealth of Massachusetts for the System described herein. Sale and use of the System are conditioned on and subject to compliance by the Company and the owner(s) of each installed system (hereinafter, the “owner(s)” or the “System owner(s)”) with the terms and conditions set forth below. Any noncompliance with the terms or conditions of this Approval constitutes a violation of 310 CMR 15.000.



November 23, 2006

Glenn Haas, Acting Assistant Commissioner
Bureau Of Resource Protection
Department of Environmental Protection

Date

I. Purpose

1. The purpose of this Approval is to allow installation and operation of up to 50 Systems in Massachusetts, on a Provisional Use basis, in order to further evaluate the capabilities and performance of the System. The specific goals of the further evaluation are to determine:
   i. if the System is capable of consistently reducing the total nitrogen (TN = TKN+NO_2+NO_3) concentration in the effluent discharged to the soil absorption system (SAS) so that the Department may allow an increase in the loading rate per acre on a General Use basis in areas subject to nitrogen loading limitations,
   ii. if the System is capable of meeting or exceeding effluent limitations for a Recirculating Sand Filter (RSF) set forth at 310 CMR 15.202 (4), and
   iii. if at least 90 percent of the installed Systems perform at a level at least equivalent to that of an RSF as set forth in 310 CMR 15.202 (4).
2. With the necessary local permits and local approvals required by 310 CMR 15.000, this Provisional Use Approval authorizes the use and installation of the System in Massachusetts for Systems with a design flow of less than 10,000 gpd, and requires testing so that the Department can determine whether the System consistently can or cannot function to effectively reduce total nitrogen in the effluent.
3. The System may only be installed on facilities that meet the criteria of 310 CMR 15.286(4) and are approved by the local approving authority.

II. Design Standards

1. The System is an aerobic treatment system that uses an enhanced recirculating biological trickling filter in a treatment process to reduce biochemical oxygen demand (BOD5) and total suspended solids (TSS) from wastewater by biological degradation and to reduce total nitrogen to levels indicated under 310 CMR 15.217 as defined below. The wastewater flows into the first of two tanks consisting of a two compartment primary anoxic tank where primary settling and partial denitrification occur. The second processor tank contains the trickling filter media and pumps for recirculation within the trickling filter, recirculation back to the anoxic tank and for discharge to the distribution box of the soil absorption system (SAS) or to a pressure distribution system. In addition to BOD reduction, further nitrification occurs in the mixed-liquor as it passes through the trickling filter with the ammonium in the wastewater converting to nitrate. The System uses a hydrophobic media, composed of either polystyrene beads or polystyrene beads with honeycomb shaped solid media, in a two-stage process that allows biological growth within the media pore spaces. SeptiTech Models M400N through M750N come prefabricated in HDPE or concrete tanks and have hydrophobic bead media in mesh bags. SeptiTech Models M1200N through M3000N are configured similar to M400N series tanks however these units include a larger processor tank and use a combination of the larger commercial solid media and hydrophobic bead media in

mesh bags. A programmable logic controller (PLC) controls the treatment process. The PLC continuously monitors incoming flows and adjusts the treatment process (recirculation, recycle, sludge return and discharge cycles).

i Wastewater from the primary anoxic tank enters the treatment tank and collects in a reservoir at the base of the tank where it mixes with treated wastewater,
ii A recirculation pump controlled by the PLC pumps the wastewater to the treatment area at the top of the tank where air is drawn into the wastewater,
iii The aerated wastewater is sprayed over the hydrophobic media which is suspended above the reservoir, wastewater trickles through the media and returns to the reservoir,
iv Wastewater is circulated over the media 70 or more times per day,
v Effluent is returned on a scheduled basis to the anoxic tank for denitrification
vi Solids in the reservoir are periodically returned to the anoxic tank

2. System shall be installed between the building sewer and the soil absorption system (SAS) of a Title 5 constructed in accordance with 310 CMR 15.000, subject to the provisions of this Approval.

3. All access ports and manhole covers shall be installed and maintained at grade to allow for maintenance of the System. If existing tankage units are to be used with the System, these units shall also be required to have covers and ports at finish grade to allow for proper maintenance and sampling of the System.

4. The control panel including alarms shall be mounted in a location accessible to the operator of the System.

5. For Systems with a design flow of 2000 gpd or greater an influent sampling location that is not impacted by recycled wastewater shall be a part of the design.

6. <u>New Construction:</u> When the System is used in areas subject to the nitrogen loading limitations of 310 CMR 15.214, an increase in calculated allowable nitrogen loading per acre is allowed for facilities as provided in 310 CMR 15.217(2). When used in such areas:

i. for residential facilities, the design flow shall not exceed 660 gallons per day per acre (gpda), and the System shall not exceed 19 milligrams per liter (mg/L) total nitrogen (TN) concentration in the effluent measured as the total of TKN (Total Kjeldhal Nitrogen), NO_3-N (Nitrate nitrogen) and NO_2-N (Nitrite nitrogen),

ii. for non-residential facilities, and all facilities from 2000 gpd to less than 10,000 gpd the design flow shall not exceed 550 gpda, and the System shall not exceed 25 mg/L TN concentration in the effluent.

7. The above maximum design flows are based on the maximum nitrogen loading rate credit that technologies with a Certification for General Use have received

from the Department. This allows for replacement of a failed provisional system with an approved technology.

III. General Conditions

1. All provisions of 310 CMR 15.000 are applicable to the use and operation of this System, the System Owner and the Company, except those that specifically have been varied by the terms of this Approval.

2. This Approval shall be binding on the System Owner and on its agents, contractors, successors, and assigns, and the Company and its officers, employees, agents, contractors, successors, and assigns. Violation of the terms and conditions of this Approval by any of the foregoing persons or entities, respectively, shall constitute violation of this Approval by the System owner or the Company unless the Department determines otherwise.

3. Any required operation and maintenance, monitoring and testing shall be performed by the Company or its approved operators in accordance with a Department approved plan. Any required sample analysis shall be conducted by an independent U.S. EPA or Department approved testing laboratory, or a Department approved independent university laboratory, unless otherwise approved by the Department in writing. It shall be a violation of this Approval to falsify any data collected pursuant to an approved testing plan, to omit any required data or to fail to submit any report required by such plan.

4. The facility served by the System and the System itself shall be open to inspection and sampling by the Department and the local approving authority at all reasonable times.

5. In accordance with applicable law, the Department and the local approving authority may require the System owner(s) to cease operation of the system and/or to take any other action deemed necessary to protect public health, safety, welfare and the environment.

6. The Department has not determined that the performance of the System will provide a level of protection to public health, safety, welfare and the environment that is at least equivalent to that of a sanitary sewer system. Accordingly, no System shall be upgraded or expanded, if it is feasible to connect the facility to a sanitary sewer, unless as allowed by 310 CMR 15.004.

7. Design, installation and operation shall be in strict conformance with the Company's approved plans and specifications, 310 CMR 15.000 and this Approval.

8. The System is approved in connection only with the discharge of sanitary wastewater. Any non-sanitary wastewater generated or used at the facility served by the System shall not be introduced into the System and shall be lawfully disposed of.

9. All effluent samples shall be taken at a flowing discharge point, i.e.- distribution box, pipe entering a pump chamber or other location from the treatment unit approved by the Department in writing. Any required influent samples shall be taken at a location that will provide a representative sample of the influent.

Influent sample locations shall be determined by the System designer, in consultation with the Company, and shall be selected so that the influent characteristics are not significantly changed by the System recycle.

10. Effluent discharge concentrations shall meet or exceed secondary treatment standards of 30 mg/L carbonaceous biochemical oxygen demand ($CBOD_5$) and 30 mg/L total suspended solids (TSS).

11. For Systems installed at residential facilities with design flows less than 2,000 gpd, TN concentration in the System effluent shall not exceed 19 mg/L. For Systems installed at all non-residential facilities and residential facilities with design flows 2,000 gpd or greater, TN concentration in the System effluent shall not exceed 25 mg/L.

IV. Conditions Applicable to the System Owner

1. Prior to installation of the System, the proposed owner shall obtain a Disposal System Construction Permit in accordance with 310 CMR 15.020 from the local approving authority. The application to the local approving authority shall include a certification signed by the Company or its designee that the System has been designed in accordance with the Company's requirements, 310 CMR 15.000 and this Approval. The Certification shall be consistent with the model attached hereto as Exhibit A. This Company certification in no way changes the requirements of 310 CMR 15.220 (1) and (2). Department approval of the System design is not required unless the Department determines on a case-by-case basis pursuant to its authority at 310 CMR 15.003(2)(e) that the proposed System requires its review.

2. The System owner shall at all time have the System properly operated and maintained in accordance with this Approval, the designer's operation and maintenance requirements and the Company's Department approved procedures and sampling protocols.

3. Operation and Maintenance agreement:

   i. Throughout its life, the System shall be under an operation and maintenance (O&M) agreement. The System owner shall be responsible for maintaining a contract with the Company or the Company's approved operation and maintenance contractor throughout the Provisional Use Approval period unless and until the System is Certified for General Use by the Department. Subsequent to General Use Certification of the system, O&M agreements shall be for at least one year and may be with any Massachusetts certified operator of the appropriate grade that has received training by the Company on the operation of the System.

   ii. No System shall be used until an O&M agreement is submitted to the local approving authority which:

      a. provides for the contracting with the Company or a Company approved operation and maintenance contractor that has been trained by the Company to operate the System consistent with the System's specifications and any additional operation and maintenance

requirements specified by the designer, the local approving authority, or the Department;

b. contains procedures for notification to the Department and the local approving authority within five days of knowledge of a System failure and for corrective measures to be taken immediately;

c. contains a plan to determine the cause of effluent total nitrogen limit violations that occur any time after the first three months of operation, if such violations occur on two consecutive sampling events;

d. provides the name of an operator, which must be a Massachusetts certified operator if one is required by 257 CMR 2.00, that will operate and monitor the System (hereinafter the "System operator"). The System operator must inspect and operate and maintain the System.

(1) for residential installations with a design flow less than 2,000 gpd, conduct inspections at least every three months and anytime there is an alarm event, and,

for all non-residential facilities with a design flow 2,000 gpd or greater, unless otherwise approved in writing by the Department, conduct biweekly inspections for the first three months of operation then at least monthly.

4. Anytime the System operator is changed, within seven days of such change, the System owner shall notify the local approving authority and Company in writing and submit a copy of the new agreement to operate and monitor the System to the local approving authority and the Company. The new operator must have received Company approved training on the System.

5. The System owner shall furnish the Department or the local approving authority any information, which either entity may request regarding the System, within 21 days of the date of receipt of that request.

6. Prior to transferring any or all interest in the facility served by the System, or any portion of the facility, including any possessory interest, the System owner shall provide written notice of all conditions contained in this Approval to the transferee(s). Any and all instruments of transfer and any leases or rental agreements shall include as an exhibit attached thereto and made a part thereof a copy of this Approval for the System.

7. For year round residential facilities <u>with design flows less than 2,000 gpd</u>, effluent from the System shall be monitored at least once per calendar quarter. Any sample collected within 60 days or more than 90 days of a previous sample shall not be considered a required quarterly sample. For all non-residential facilities and residential facilities <u>with design flows of 2,000 gpd or greater</u>, both influent and effluent shall be sampled and analyzed biweekly for the first three months, unless otherwise approved by the Department, and monthly thereafter. Following the three months of startup only effluent sampling will be required. Should the System not meet effluent limits for two consecutive sampling periods the System shall be sampled for both influent and effluent until the effluent limits are met.

The following parameters shall be monitored: pH, influent BOD_5, effluent $CBOD_5$, TSS, alkalinity and TN. Each time the System is monitored, the water meter, if a water meter is installed, shall be read and the water use recorded. For residential Systems less than 2,000 gpd after two years of monitoring and at the request of the System owner the Department may reduce System monitoring requirements.

8. For seasonal residential facilities where the residence is occupied fewer than six months per year, effluent from the System shall be monitored twice per season; initially 45 days after occupancy and if the residence is occupied during an additional calendar quarter, once during that following quarter prior to System shut down. The following parameters shall be monitored: pH, $CBOD_5$, TSS, TN and alkalinity. Each time the System is monitored, the water meter, if a water meter is installed, shall be read and the water use recorded. After four years of monitoring, and at the request of the System owner, the Department may reduce System monitoring requirements.

9. Prior to the issuance of a Certificate of Compliance for the System, the System owner shall record and/or register in the appropriate Registry of Deeds and/or Land Registration Office, a Notice disclosing the existence of the alternative septic system subject to this Approval on the property. If the property subject to the Notice is unregistered land, the Notice shall be marginally referenced on the owner's deed to the property. Within 30 days of recording and/or registering the Notice, the System owner shall submit the following to the local approving authority: (i) a certified Registry copy of the Notice bearing the book and page/instrument number and/or document number; and (ii) if the property is unregistered land, a Registry copy of the owner's deed to the property, bearing the marginal reference.

10. Prior to the issuance of a Certificate of Compliance for the System, the Company shall submit to the local approving authority and the System owner a signed certification that the System has been installed in accordance with the Company's requirements and this Approval. This certification in no way changes the requirements of 310 15.021(3). The System owner shall not make any changes to the System including landscaping that changes access to the System without the approval of the Company and the local approving authority.

11. For all Systems 2000 gpd or greater, the System owner shall conduct and document an education program at the facility within 60 days of startup based on the information provided by the Company in Section V item 3 regarding information on substances that should not be discharged to the System.

V. Conditions Applicable to the Company

1. By March 1st of each year, the Company shall submit an annual report to the Department signed by a corporate officer, general partner or Company owner that contains all sampling and inspection information collected on the System for the previous calendar year and present a report on the System's capability to meet the

Approval's effluent requirements. The report shall include the following information:

i. Details on total number of units of the System sold for use in Massachusetts during the previous year; the address of each installed System, the owner's name and address, the type of use (e.g. residential, commercial, school, institutional) and the design flow and model;

ii. Date when system was installed and started up;

iii. Tabulation of the sampling parameters and results with backup inspection and laboratory sheets available upon request;

iv. Statistical analysis of the sampling results including but not limited to average and mean values with the percentage of systems that are meeting the effluent limits compared to the systems that are out of compliance;

v. Tabulation of systems that are out of compliance, reasons for non-compliance and any corrective action taken including but not limited to design, installation and/or operation or maintenance changes required to reach compliance;

vi. The inspection results recorded on a Department approved inspection form and a technology checklist, copies of which are attached to this Approval. The forms must be completed by the System operator and submitted to the Department with the annual report;

vii. A general summary of the results for the year, any recommended changes to the design, installation and/or operation and maintenance procedures and a schedule for implementing those changes; and

viii. The three year report on the operation of the System shall be prepared as required by item 8 below.

2. The Company shall notify the Director of the Watershed Permitting Program at least 30 days in advance of the proposed transfer of ownership of the technology for which this Approval is issued. Said notification shall include the name and address of the proposed new owner and a written agreement between the existing and proposed new owner containing a specific date for transfer of ownership, responsibility, coverage and liability between them. All provisions of this Approval applicable to the Company shall be applicable to successors and assigns of the Company, unless the Department determines otherwise.

3. The Company shall make available to owners, operators, designers and installers of the System, in printed and electronic format: minimum installation requirements; an operating manual, including information on substances that should not be discharged to the System; a protocol for collecting samples; a maintenance checklist; and a recommended schedule for maintenance of the System.

4. The Company shall institute and maintain a program of operator training and continuing education. The Company shall maintain and annually update, and make the list of qualified operators available by March 1st of each year. The

Company shall also make the list known to the local approving authorities, the Department and users of the technology.

5. The Company or its designee shall conduct a review of the System prior to the sale of any unit to ensure that the proposed use of the System is consistent with the unit's capabilities. This review shall certify in writing, as described in Section IV item 1. above, that the intended use conforms to this Approval and any Company requirements and submit a copy of that certification to the local approving authority and the System owner.

6. Prior to the issuance of a Certificate of Compliance for the System, the Company or its designee shall conduct an inspection of the facility prior to system startup and certify in writing to the local approving authority and the System owner that the unit has been installed in accordance with the Company's requirements and this Approval. The Certification shall be consistent with the model attached hereto as Exhibit B. This certification in no way changes the requirements of 310 CMR 15.021(3).

7. The Company or the Company's approved operation and maintenance contractor shall maintain a contract with the System owner throughout the Provisional Use Approval period until the System is Certified for General Use by the Department that:

    a. provides for operating and maintaining the System with an operator that has been trained by the Company to operate the System consistent with the System's specifications and any additional operation and maintenance requirements specified by the designer or by the Department;

    b. contains procedures for notification to the System owner, the Department and the local approving authority within five days of knowledge of a System failure and for corrective measures to be taken immediately;

    c. contains a plan to determine the cause of effluent limit violations for total nitrogen excluding the first three months of operation, if such violations occur on two consecutive sampling events; and

    d. provides the name of an operator, which must be a Massachusetts certified operator if one is required by 257 CMR 2.00, that will operate and monitor the System (hereinafter the "System operator"). The System operator must inspect, operate, and maintain the System as specified in Section IV item 3.

8. The Company shall conduct a performance evaluation in accordance with 310 CMR 15.286(7) starting after at least 50 systems have been installed and operating for at least three years. In those cases where the Company also installed and collected operating results from Pilot Use Systems or other Systems located in areas not defined as DEP nitrogen sensitive areas, the results from those Systems can be used in the 50 System total, provided that the Company can document that the models installed are the same models this Approval applies to,

and that inspection and sampling was conducted in accordance with this Approval, and that the results were collected over a three year period. A report shall be submitted to the Department no more than 180 days beyond the three year period evaluating whether at least 90 percent of the units installed for at least three years are meeting the effluent limits as presented in Section III items 10 and 11 and describing any changes in the design, installation and/or operation or maintenance that have been or will be taken to meet the 90 percent target. If the System does not meet the 90 percent requirement, the report shall detail the changes that must be made in design, installation and/or operation or maintenance to meet the goal and include a schedule containing a deadline for implementing those changes.

9. The Company shall not install or allow installation of more than 50 systems unless otherwise approved by the Department in writing.

10. The Company shall furnish the Department any information that the Department requests regarding the System within 21 days of the date of receipt of that request.

11. The Company shall include copies of this Approval with each System that is sold. In any contract executed by the Company for distribution or re-sale of the System, the Company shall require the distributor or re-seller to provide each purchaser of the System with copies of this Approval

12. If the Company wishes to continue this Approval beyond its expiration date, the Company shall apply for and obtain a renewal of this Approval. The Company shall submit a renewal application at least 180 days before the expiration date of this Approval, unless written permission for a later date has been granted in writing by the Department**.** This Approval shall continue in force until the Department has acted on the renewal application.

13. The Department may require the Company to perform evaluations of system performance, conduct tests, and take corrective action when, based upon a preponderance of the available data and information, it is necessary to take such actions to ensure technology performance complies with this Approval.

VI. **Reporting**

1. All notices and documents required to be submitted to the Department by this Approval shall be submitted to:

Director
Watershed Permitting Program
Department of Environmental Protection
One Winter Street - 6th floor
Boston, Massachusetts 02108

2. All inspection forms and sampling results collected by Operation and Maintenance contractors shall be submitted to both the Department and the Company.

VII. Rights of the Department

1. The Department may suspend, modify or revoke this Provisional Use Approval for cause, including, but not limited to, non-compliance with the terms of this Approval, non-payment of the annual compliance assurance fee, for obtaining the Approval by misrepresentation or failure to disclose fully all relevant facts or any change in or discovery of conditions that would constitute grounds for discontinuance of the Approval, or as necessary for the protection of public health, safety, welfare or the environment, and as authorized by applicable law. The Department reserves its rights to take any enforcement action authorized by law with respect to this Approval and/or the System against the System owner, System operator, and/or the Company.

VIII. Expiration date

1. Notwithstanding the expiration date of this Approval, any System sold and installed prior to the expiration date of this Approval or any continuation of this Approval, that is approved, installed and maintained in compliance with this Approval (as it may be modified) and 310 CMR 15.000, may remain in use unless the Department, the local approving authority, or a court requires the System to be modified or removed, or requires discharges to the System to cease.